Online Research @ Cardiff

This is an Open Access document downloaded from ORCA, Cardiff University's institutional repository: https://orca.cardiff.ac.uk/id/eprint/114581/

This is the author's version of a work that was submitted to / accepted for publication.

Citation for final published version:

Mullen, Stephen, Quinn-Scoggins, Harriet D. ORCID: https://orcid.org/0000-0002-6136-070X, Nuttall, Diane ORCID: https://orcid.org/0000-0002-9305-4547 and Kemp, Alison M. ORCID: https://orcid.org/0000-0002-1359-7948 2018. Qualitative analysis of clinician experience in utilising the BuRN Tool (Burns Risk assessment for Neglect or abuse Tool) in clinical practice. Burns 44 (7) , pp. 1759-1766. 10.1016/j.burns.2018.03.013 file

Publishers page: http://dx.doi.org/10.1016/j.burns.2018.03.013 <http://dx.doi.org/10.1016/j.burns.2018.03.013>

Please note:
Changes made as a result of publishing processes such as copy-editing, formatting and page numbers may not be reflected in this version. For the definitive version of this publication, please refer to the published source. You are advised to consult the publisher's version if you wish to cite this paper.

This version is being made available in accordance with publisher policies. See http://orca.cf.ac.uk/policies.html for usage policies. Copyright and moral rights for publications made available in ORCA are retained by the copyright holders.

information services
gwasanaethau gwybodaeth

Title page

Title: Qualitative analysis of clinician experience in utilising the BuRN Tool (**B**urn **R**isk assessment for **N**eglect or abuse **T**ool) in clinical practice.

Author names and affiliations: Stephen Mullen [a, b, *], Harriet D. Quinn-Scoggins [b, c], Diane Nuttall [b, c], Alison M. Kemp [b, c]

[a] Paediatric Emergency Department, University Hospital of Wales, CF14 4XW, Cardiff, Wales, UK
[b] The Scar Free Foundation Centre for Children's Burns Research, CF14 4YS, Cardiff, Wales, UK
[c] Division of Population Medicine, School of Medicine, Cardiff University, Cf14 4YS, Cardiff, Wales, UK

*Corresponding author

Email addresses: MullenSM@Cardiff.ac.uk (S. Mullen), NutallDE@Cardiff.ac.uk (D. Nuttall), Quinn-ScogginsHD@Cardiff.ac.uk (H. Quinn-Scoggins), KempAM@Cardiff.ac.uk (A. Kemp)

Qualitative analysis of clinician experience in utilising the BuRN Tool (Burns Risk assessment for Neglect or abuse Tool) in clinical practice.

S Mullen, H Quinn-Scoggins, D Nuttall, A Kemp.

Abstract

Introduction

The BuRN-Tool (Burns Risk assessment for Neglect or abuse Tool) is a clinical prediction tool (CPT) aiding the identification of child maltreatment in children with burn injuries. The tool has been derived from systematic reviews and epidemiological studies, validated and is under-going an implementation evaluation. Clinician opinion on the use of this CPT is a key part of its evaluation.

Objectives

To explore the experience of emergency clinicians use of the BuRN-Tool in an emergency department (ED).

Methods

Three focus groups were conducted over a six-week period by the research team in the ED in the University Hospital of Wales; 25 emergency clinicians attended. A semi-structured approach was taken with pre-determined open-ended questions asked followed by a series of case vignettes to which the CPT was applied. The focus groups were recorded and transcribed verbatim. Thematic analysis was conducted for identification of pre-set and emergent themes. All data were double-coded.

Results

All participants said that it was acceptable to use the BuRN-Tool to aid in the decision-making process surrounding child maltreatment. All participants said that the BuRN-Tool was helpful and straight forward to use. All participants said

that the tool was clinically beneficial, particularly for junior staff and those who do not always work in a paediatric environment.
The clinical vignettes identified subjectivity in interpretation questions around adequate supervision, previous social care involvement and full thickness burns. This resulted in some variation in scoring.

Conclusions

This study confirms that the BuRN-Tool is acceptable in an ED setting. The focus groups demonstrated a homogenous and positive attitude regarding the layout, benefits and use of the BuRN-Tool. The subjective interpretation of some variables accounts for the non-uniformity in the scores generated. Clarification of questions will be made.

Introduction

Approximately 50-60 000 children attend emergency departments each year as a result of burns[1]. Evidence suggests that the proportion to child maltreatment ranges from 1-24% (1% Cornwall, UK; 24% USA)[2,3]. One of the most current UK figures quoted estimate that 10% are a result of maltreatment with the ratio of physical abuse to neglect 9:1[4].

The identification of burns due to maltreatment is complex but is an essential step in safeguarding children. For those discharged without recognition of the signs of maltreatment, there is an increased risk of future neglect or abuse[5,6].

Members of the Children's Burns Research Network have developed a clinical prediction tool (CPT). The BuRN-Tool (**Bu**rns **R**isk assessment for **N**eglect or abuse **Tool**) generates a simple score based around seven routinely collected demographic, historical and clinical features (Appendix 1). Possible scores range from 0-12. A score of three or more acts as the threshold above which maltreatment is suspected[7]. The variables in the tool were identified following a systematic review and an epidemiological study[8,9]. Data collection for these studies utilised a proforma called the BaSAT (Burns and Scalds Assessment Template –Appendix 2). As well as its role as a research template, the BaSAT acts as a clinical record, aiding the identification of key features of maltreatment and works in synergy with the BuRN-Tool which has been prospectively validated[7]. The next stage in the development of a CPT is to undertake an implementation study to ensure that the CPT has the desired effect in the clinical setting[10].

As an initial stage in the process evaluation, we have undertaken a qualitative study to explore clinician opinion on the acceptability of the BuRN-Tool during the implementation study. In a previous study, the acceptability of the CPT was assessed, noting that clinicians were willing to use the BuRN-Tool[11]. This analysis occurred before the tool was in clinical use with the BuRN-Tool undergoing considerable revisions since.

In the study site, the BuRN-tool is incorporated into the BaSAT in the ED. The ED was chosen as the BuRN-Tool was derived from an ED population and is designed to be used in this environment.

Methods

Design

Focus group methodology is a recognized means of collecting qualitative data. The method allows for extrapolation of the data collected, and further interpretation and refinement of results[12,13]. It can be a particularly useful to explore knowledge and experiences[14].

A key advantage of focus groups is the ability to involve multiple participants in one session, allowing for data to be gathered from numerous candidates without the need for several interviews[13]. It facilitates discussion between participants that can lead to richer data and has a significant advantage in terms of cost.

Ethical consideration

Ethical approval was sought as part of the BuRN-Tool research study (MREC/15/WA/0259). Clinicians were invited to participate in a focus group and given an information sheet outlining the purpose and scope of the group. Participants were asked to sign a consent form and made aware that the session would be recorded. Permission was sought to use direct quotes in any output from the focus groups whilst ensuring the anonymity of individuals.

Setting and sample

Clinicians working in the ED in University Hospital Wales (UHW), Cardiff were opportunistically recruited to the focus groups through invitations through existing junior, middle and consultant grade weekly teaching and meeting groups. This site was chosen due to its on-going participation in the evaluation of the BuRN-Tool; therefore all participants were aware of the use of the BuRN-Tool within the ED and familiar with its use. The department had used the CPT on 50 cases at the time of this study.

Each focus group was homogenous in terms of level of staff seniority. Pragmatic considerations were part of the reason for this allocation. The research team felt that the junior and middle grade staff may be less willing to discuss certain aspects openly in front of their seniors.

Focus groups –participants and duration

Three focus groups were conducted. Participants were split by level of seniority. The demographics and duration of each focus group are shown in table 1.

Format

The focus groups were conducted over a six-week period by SM and DN.
A semi-structured approach was taken with pre-determined open-ended questions that were asked to allow group discussion regarding specific themes of interest to the research group. This was followed by the case vignette component.

Opening questions

Six questions were asked to ascertain the participants' experience of the BuRN-Tool in clinical practice (Table 2) and to encourage open discussion.

Vignettes

All three groups of participants were involved in the vignette component of this study. These were initially designed to analyse the decision making process of the individual when a score was generated. The cases were designed by SM. Following the first focus group (junior tier) the team noted a variation in how participants interpreted the vignettes. For subsequent focus groups, a more standardised set of cases (Appendix 3) was used, designed by SM. A research team member independently assigned a BuRN-Tool score for each case (DN).
Each participant was given the same clinical scenario with additional information provided if requested. A copy of the BuRN-Tool was provided to each member, who scored the case. Once each participant had scored each case independently a group discussion then ensued around how the score was reached. Comparisons between the participants total BuRN-Tool score (as noted during the recording of the session) and that of the research team was performed.

The junior and middle grade staff, discussed all five vignettes and the consultants discussed four (1,2,3,5). This variation was due to time-constraints.

Analysis

The focus groups were recorded using two dictaphones and transcribed verbatim to print. Thematic Analysis was conducted independently by SM and DN with relevant quotes coded in Microsoft Word 2010 [15,16]. A recursive technique to code identification was used with deductive pre-set codes (relating to acceptability, interpretation and actions) and an inductive exploration of emerging themes was extrapolated from the data. Additional attention was paid to differences and similarities between the three participant groups. Discussions were held between the researchers to assess consistency of codes, theme identification and to finalise the coding framework (Table 3).

The BuRN-Tool score calculated by the research team and individual participants for the vignette study were compared using mean, standard deviation and variance for each case. This was to assess consistency in scoring and all transcripts were double coded by SM and DN.

Results

The following results are presented by sub-theme. Quotes presented represent illustrative examples of the identified themes. Insertions to clarify topic content are denoted by square brackets. The characteristics of each participant are presented in brackets after each quote.

Acceptability

Acceptability of the BaSAT and BuRN-Tool was high across all participants and staff of different grades.

Format of the BuRN Tool

Participants consistently associated acceptability with ease of use of the BuRN-Tool; particularly commenting on its ease of completion and user format.

> *'straight forward (and) helpful' (Focus Groups 1, Participant 4)*

Several participants directly related acceptability with the ease of understanding interpretation of the questions within the BuRN-Tool.

Perceived Benefits in using the BuRN-Tool

All participants commented that the BuRN-Tool was clinically beneficial and did not increase clinical workload. Participants suggested that the greatest perceived benefits for the CPT would be for those of lower seniority and those who do not consistently work in paediatrics. Explanations for this were that the BuRN-Tool acts as a reminder to consider safeguarding and helps to focus the mind on all aspects of it – especially for those who did not constantly have contact with this area.

> *'helps you concentrate on things that you haven't thought of and we should always be considering safeguarding in our mind and that this helps' (Focus Group 2 ,Participant 3)*

> *'good for people who don't always work in paediatrics, especially for those who cover after hours' (Focus Group 2 Participant 1)*

All participants agreed that CPTs in child protection were useful. Participants felt that having a standardised set of questions helped to ensure consistency of practice and would make sure that no important factors were missed. One participant felt that this in-turn acted as a perceived benefit to empower clinicians at all levels to be as vigilant as possible. It was also proposed that the BuRN-Tool empowered junior clinicians to identify and discuss child protection concerns with seniors.

> *'it serves as a great reminder, vital for those that are not from a paediatric background -even good for consultant level' (Focus Group 2, Participant 3)*

> *'Empowers the trainees. Things that are subtle for the non-paediatrician, they might miss it' (Focus Group 3, Participant 9)*

'If you went with a story (to a senior) they might be ok, yeah that's ok, if you went with a story and a high score they might come a bit faster and see them' (Focus Group 1, Participant 6)

Concerns about using the BuRN-Tool

Barriers raised regarding the tool were associated with the potential to miss other non-burn related child protection concerns. Concern was expressed about the legal ramifications of cases that might be referred to children's social care despite having low scores on the tool. One participant suggested that there would always be exceptions. Further group discussions around both circumstances reaffirmed the importance of the tool as an adjunct to clinical knowledge and experience.

'You would worry that someone hasn't read the 0-2 box and had a concern and did not act on it'. (Focus Group 3 Participant 2,3)

'No, I feel the tool works well. [There is] always an exception to rule'. (Focus Group 2, Participant 1)

With regard to the legal ramifications one member of the senior management addressed this highlighting again the importance of the tool as an adjunct, describing it as 'guidance', suggesting that if the score was provided in the context of a reasonable clinical assessment then support would be provided to the clinician.

'All of these are guidance. I would support you if I had seen that you had taken into account the tool. As long as there is evidence of taking the score in context of a reasonable clinical assessment then I think that Trust [hospital governance] would fully defend you'. (Focus Group 3, Participant 10)

Suggestions for Improvement

Two suggestions for improvements were made by participants.
One proposed an improvement to the tool with the addition of a 'gut feeling' question. The reasoning provided for this was based on the importance of 'gut feeling' in

paediatric practice. Further discussion established that this 'gut feeling' was closely related to the level of experience of the clinician. It was proposed to the clinician that due to it being an abstract concept there is no statistical evidence to support this at present.

'maybe a question on gut instinct' (Focus Group 2, Participant 4)

Some participants suggested integrating a question about why there was previous social worker involvement with the family – as it was not just their involvement that was important to participants, but understanding why, as this would affect their opinions and interpretations of the score. This is further discussed in the next section.

Interpretation and Actions

Interpretation of clinical vignettes

Standardisation and ease of understanding of the questions was merited by all. In order to facilitate the acceptability of the tool, many clinicians discussed the subjectivity and personal interpretations of two of the questions (supervision concern and pervious social worker). This mainly centred around the question regarding supervision, with open discussion on what 'appropriate adult supervision' means. When discussing this, many clinicians adopted a personal narrative approach relating to their own parenting experiences and provided examples. Others provided a hypothetical narrative approach around different circumstances that could arise. A difference occurred across staff grades as to what was 'appropriate'; with those junior staff being stricter (i.e being in the same room and having the child in sight), and the middle grade staff and consultants had a more holistic interpretation of the circumstances (i.e. a greater appreciation of the details such as why the adult left the room, how long for etc).

Only junior staff brought up the importance of using *common sense*, observing body language and assessing the plausibility of the incident history provided as factors in making judgements. These considerations highlight parts of the process to review whether the story and situation provided is deemed atypical.

'Always a bit of judgement call, part of it is a bit of common sense' (Focus Group 1, Participant 2

'Would I have been happy to leave my kid in this situation. Am I happy with the story in general, whether people were around' (Focus Group 1, Participant 3)

'Depends on when you see the patient. It is up to you how you judge it –you need to take into account things like body language. This can be a hard question to answer. It depends on how convinced you are with the story' (Focus Group 1, Participant 2)

Another instance in which a discussion opened up was around previous involvement of a social worker with the family. Amongst the junior staff many participants commented that they would provide the same weight to this factor regardless of the reasoning for the social worker being involved. This sentiment was echoed by the senior staff who suggested that they would take it at 'face value'. However, those in the middle grade suggested that more information would be needed and the reason for the previous social worker's involvement would influence what they would assign to this factor and their interpretation of the score. The middle grade staff suggested that many would seek this information themselves.

'You probably end up still discussing it but the way you discuss it will be different. You will give the context and say, "this is the case and would score nothing other that for the past social worker"' (Focus Group 1, Participant 3)

'Put it down in the score as it is there. Say a score of 5, but 3 of previous social worker –I would put it down but in my head would be thinking differently' (Focus Group 2, Participant 4)

'Better to include it, then look at it in more detail. If ok (that the involvement was not due to a safeguarding concern) then you would removed the 3.' (Focus Group 1, Participant 10)

Recommended actions

Discussions on recommended actions were strongly associated with interpretations of the vignettes.

The instructions within the BuRN-Tool for the junior staff are to discuss any concerning case with a significant score (>3) with a senior member of staff. No member of the junior staff reported any conflict between how they interpreted the case compared to the senior staff. No junior staff member reported that they would send a patient home with a significant score without discussion with a senior, nor could they think of any situation where it would be plausible to do so.

> *'No (I would not send a patient home with a significant score), as the protocol specifically says not to.' (Focus Group 1, Participant 8)*

The middle grade staff were consistent in action generated as a result of the BuRN-Tool score and scenario. The group all agreed on similar actions varying from a routine health visitor notification through to formal referral to the safeguarding team. Coherence in actions between participants was determined by in-depth conversations analysing each case. As shown previously the middle grade staff advocated that they would investigate queries and action points themselves with further inquiries of health visitor records and discussions with children's social care. Such actions can decrease the burden and waiting time for hospital admission and referrals for safeguarding. Facilitators to these discussions were previous paediatric safeguarding experience and constant interaction with the topic.

> *'I would want to get more information -double check the PARIS system [electronic health visitor and social care database], I would ring or contact the social worker. I would contact the health visitor or school nurse. I could get someone to call home to review what the home situation is like' (Focus Group 2, Participant 1)*

Amongst the senior staff there was almost universal agreement on actions; airing on the side of caution and the need to generate more information.

> *'I would escalate in this situation [to paediatric safeguarding team on call] and go for potentially the worse case scenario. It is better to be over reactive than under'. (Focus Group 3 Participant 7)*

Emergent Themes

Variation in scoring

The scoring generated is displayed in table 4. Although variation exists in comparison to those generated from the research team, the mean score is within 1 point for all cases.

Education

A discussion was held with the junior staff regarding the categorisation of burn depths – especially regarding what constituted a full thickness burn. The question raised suggested a lack of clarity in knowledge and/or understanding of what constituted a full-thickness burn and could act as a barrier as individuals would not be able to accurately complete the tool, and would have lower confidence in doing so.

Discussion

The focus groups demonstrated a homogenous and positive attitude regarding the layout, benefits and use of the BuRN-Tool. The perceived benefits crossed all levels of staff experience, training and specialities. Participants commented that those from a non-paediatric background and junior level benefited the most, while also acknowledging a role for the BuRN-Tool for experienced consultants. The ease of use and interpretation allows a consistent approach in the clinical use of the BuRN-Tool.

When the case vignettes were explored, concerns were expressed around the interpretation of some of the questions within the BuRN-Tool regarding the depth of the burn, the level of supervision, the context in which previous social workers had involvement with the family and the ramifications of making child protection decisions outside that recommended by the BuRN-Tool score. Suggestions were made regarding additional questions around gut feelings.

Interpretation of what is deemed appropriate supervision varied, generating discussions that were influenced by past experience and social circumstances. This suggests that conclusions regarding supervision are subjective. Participants were in agreement that the Tool reminded clinicians to think about this issue and make a

decision. Appropriate supervision is a fundamental principle in child protection with NICE advising that in cases lacking supervision, neglect must be considered[17]. While NICE offers a definition of supervision as 'a balance between the child's need for exploration and parent's appreciation of anticipated risk', they fail to offer more pragmatic guidance on how clinicians should reach this conclusion[17]. Further research into this area is required and consideration will be given to making this question more operational.

The participants followed a consistent approach to the 'previous social work involvement, variable for scoring but varied in interpretation and actions generated. Some clinicians sub-divided this variable into safeguarding or disability or care and support needs, applying more weight to the former. The statistical analysis from both the derivation and prospective validation identified all social services input as significant which correlates with the literature recognising children with disabilities at greater risk of maltreatment[18]. This may reflect a belief that referrals to either health or social services are solely for safeguarding concerns with a lack of understanding of the supportive role that is offered to vulnerable children.

Clinicians commented on making decisions outside those recommended by the tool and any potential ramifications that may occur as a result. The Burn-Tool was designed as a clinical aid in initiating a referral and not the sole instrument in deciding if the burn was a consequence of child maltreatment or not. The referral is the first step in a complex multi-disciplinary team (MDT) approach, which has multiple outcomes.

The middle grade tier utilised the BuRN-Tool score differently in contrast to the other groups. A score that exceeded the threshold for concern resulted in a more in-depth analysis of the case in which they assumed a senior, active safeguarding role. This would involve liaising with the wider allied health body for additional information. As 75% of this group were from a paediatric background this may reflect a greater knowledge and experience in child protection. Regarding child safeguarding training, the General Medical Council (GMC) states that doctors must keep up to date with best practice that is appropriate to their role[19]. Given the responsibility that

paediatricians are expected to undertake in this setting, they obtain more extensive training and the BuRN-Tool appeared to act as an adjunct to their clinical practice[20].

There was a suggestion to add a 'gut feeling' score. As this tool was derived and validated in studies comprising over 2, 000 cases, any additions would require further statistical analysis or new research. Currently there is limited data on the role of gut-feelings in child protection assessments. The only study the author could identify was by Horwath, in which 40% of public health nurses felt that some decisions regarding safeguarding were based upon it[21]. Whilst some of the variables within the BuRN-Tool have a level of subjectivity, they are related to decisions that must be made when assessing neglect for example, whilst gut feeling is an abstract concept without an evidence base.

The variables in a CPT need to offer consistency and a measurable outcome, which does not hold true for 'gut-feeling'. While, it may influence a part of the assessment, the inability to make any objective measurements evokes inconsistencies in responders. This may be an area for future research.

Some participants commented that they were unable to classify burns depth confidently. A review of undergraduate burns education by Al-Benna, in 2008 identified no explicit mention of burns teaching in the curriculum of all medical schools in the U.K.[22] From the prospective of this project, alterations to the education package to address these deficiencies are required with descriptive addition of full thickness burns to the BASAT template already in place. Further research into this field may be required to gain a more universal appreciation of burns knowledge in junior clinicians.

The process of constructing a CPT is one of evaluation and refinement while ensuring the derived and validated variables are kept in their original structure. The output from the focus groups provided the opportunity to alter some aspects of tool. We have re-worded questions, modified the presentation of the tool and altered the order of the variables in the clinical pro-forma. Further clarification on appropriate supervision is provided.

The subjective interpretation of some variables may have accounted for the non-uniformity in the scores generated. Ideally, the variables in CPT should be objective, resulting in standard scores generated independent of the practitioner completing them. With other CPT's the variables are based on more dichotomous yes or no variables or numeric values, allowing for a more consistent output. In child protection, the key variables are influenced by subjective interpretation of the case, impacting the score. While the values differ, the majority of scores were consistent in either being above or below the threshold value of 3. Case 2 was the only exception to this in which the scenario was scored a 2 from the research team with the majority of the participants assigning 3 or above. The higher score attributed to the case from the focus group may reflect a bias from the being involved in the research project (i.e case discussion on a CPT for child protection).

There are few CPTs in the child protection field yet there is pressure to improve detection of such cases and these tools represent a potential means of doing so[23, 24]. Recent systematic reviews have shown a lack of effective, validated, generic ED tools for identifying childhood maltreatment, which informed our decision to generate an injury specific approach[25,26]..

There is a lack of qualitative research reviewing the use of CPT in child protection. A sister piece to this study was performed before the BuRN-Tool was in clinical use, using case vignettes to gain qualitative information[11]. Although output regarding the use of the tool was limited, it did acknowledge the greatest benefit for the junior tier, consistent with our findings.

Limitations

The study limitations include the fact that the lead researchers conducted the focus groups, potentially introducing bias. The middle grade focus group was comprised of four participants, the lower end of the recommended number for a focus group and may have impacted the discussion.

The site was chosen due to its current involvement in the implementation study and the results obtained may not be generalizable to other ED's. Further focus groups will be conducted in other emergency departments as part of the project.

Potentially, given the focus groups were conducted on the topic of child protection, there may be the social desirability to score each case higher than the participants would in a real-life case.

Conclusion

This study offers an insight into clinician opinion on using CPT in an ED setting. All levels of clinician seniority supported its use. Assessing child maltreatment cases can be challenging, often involving the piecing together of small fragments of information to draw overall conclusions. The results support the hypothesis that adding a numerical score to a clinical assessment can make a subjective interpretation more objective.

References:

1. Fenlon S, Nene S. Burns in children. BJA Educ. 2007
2. Hobbs CJ. When are burns not accidental? Arch Dis Child. 1986;61:357–61
3. Sheridan RL, Ryan CM, Petras LM, Lydon MK, Weber JM, Tompkins RG, et al. Burns in Children Younger Than Two Years of Age: An Experience With 200 Consecutive Admissions. Pediatrics. 1997;100
4. Chester DL, Jose RM, Aldlyami E, King H, Moiemen NS. Non-accidental burns in children—Are we neglecting neglect? Burns [Internet]. 2006 Mar [cited 2017 Jan 18];32(2):222–8. Available from: http://www.ncbi.nlm.nih.gov/pubmed/16448766
5. Hultman CS, Priolo D, Cairns BA, Grant EJ, Peterson HD, Meyer AA. Return to jeopardy: the fate of pediatric burn patients who are victims of abuse and neglect. J Burn Care Rehabil [Internet]. 1998 [cited 2017 Feb 28];19(4):367-76-7. Available from: http://www.ncbi.nlm.nih.gov/pubmed/9710740
6. Levy HB, Markovic J, Chaudhry U, Ahart S, Torres H. Reabuse rates in a sample of children followed for 5 years after discharge from a child abuse inpatient assessment program. Child abuse & neglect. 1995 Nov 30;19(11):1363-77.
7. Kemp, A.M., Hollén, L., Emond, A.M., Nuttall, D., Rea, D. and Maguire, S. Raising suspicion of mistreatment from burns: derivation and validation of the BuRN-

Tool. *Burns* 2017 Sep 14. pii: S0305-4179(17)30473-4. doi: 10.1016/j.burns.2017.08.018

8. Maguire S, Moynihan S, Mann M, Potokar T, Kemp AM. A systematic review of the features that indicate intentional scalds in children. Burns. 2008;34(8):1072-1081
9. Kemp AM, Jones S, Lawson Z, Maguire SA. Patterns of burns and scalds in children. Archives of Disease in Childhood. 2014;99(4):316-321 [Abstract available from Journal website]
10. Stiell I, Bennett C. Implementation of clinical decision rules in the emergency department. *Acad Emerg Med*. 2007;14(11):955-959
11. Johnson EL, Hollén LI, Kemp AM, Maguire S. Exploring the acceptability of a clinical decision rule to identify paediatric burns due to child abuse or neglect. Emergency medicine journal. 2016 Apr 11:emermed-2014
12. Veit FCM, Sanci LA, Cofey CMM. *Barriers to effective primary health care for adolescents*. Med J Aust 1996; 165: 131-3
13. Powell RA, Single HM. *Focus groups*. Int J Qual Health Care 1996 8(5):499–504
14. Stalmeijer R. *Using focus groups in medical education research: AMEE Guide No. 9*. Medical Teacher 2014, 36: 923–939
15. Braun, V. and Clarke, V. (2006) Using thematic analysis in psychology. Qualitative Research in Psychology, 3 (2). pp. 77-101. ISSN 1478-0887 Available from: http://eprints.uwe.ac.uk/11735
16. Microsoft Word 2013.
17. NICE. Child maltreatment: when to suspect maltreatment in under 18s. Published 2009. https://www.nice.org.uk/guidance/cg89
18. Sullivan P. Maltreatment and disabilities: a population-based epidemiological study. Child Abuse and Neglect. Volume 24, Issue 10, October 2000, Pages 1257–1273
19. GMC. Good Medical Practice. Access 4/2/2017. http://www.gmc-uk.org/guidance/ethical_guidance/13354.asp
20. Safeguarding children and young people: roles and competences for health care staff INTERCOLLEGIATE DOCUMENT Third edition: March 2014. http://www.rcpch.ac.uk/system/files/protected/page/Safeguarding%20Children%20%20Roles%20and%20Competences%20for%20Healthcare%20Staff%20%2002%200%20%20%20%20(3)_0.pdf

21. Horwath J. The missing assessment domain: Personal, professional and organizational factors influencing professional judgements when identifying and referring child neglect. British Journal of Social Work. 2007 Dec 1;37(8):1285-303.
22. Al-Ajam, Y., Patani, N. and Al-Benna, S., 2009. Burns is not in the core curricula of medical schools in the United Kingdom. *Burns*, *35*, pp.S22-S23.
23. Cowley, L.E., Morris, C.B., Maguire, S.A., Farewell, D.M. and Kemp, A.M., 2015. Validation of a prediction tool for abusive head trauma. *Pediatrics*, *136*(2), pp.290-298.
24. Berger, R.P., Fromkin, J., Herman, B., Pierce, M.C., Saladino, R.A., Flom, L., Tyler-Kabara, E.C., McGinn, T., Richichi, R. and Kochanek, P.M., 2016. Validation of the Pittsburgh Infant Brain Injury Score for abusive head trauma. *Pediatrics*, p.e20153756.
25. Bailhache M, Leroy V, Pillet P, et al. Is early detection of abused children possible?: a systematic review of the diagnostic accuracy of the identification of abused children. BMC Pediatr 2013;13:202.
26. Woodman J, Pitt M, Wentz R, et al. Performance of screening tests for child physical abuse in accident and emerge